Madroño, Vol. 51, No. 4, p. 399–402, 2004

REVIEWS

Vegetation of circumboreal coniferous forests. Edited by Milan Chytrý and Toby Spribille. 2002. OPULUS Press, Uppsala, Sweden. 184 pp. EUR 30.00. ISBN 91-88716-27-9.

The coniferous forests of Eurasia and North America represent one of the largest vegetation formations in the world, occupying approximately 19 million km^2. The centers of biodiversity of these forests are in eastern Asia and western North America. However, despite their vast size and environmental significance, boreal forests have received comparatively little attention from phytosociologists. Their continuous distribution across the northern hemisphere points to the need for international cooperation in comparative studies and prioritization of particular areas for conservation. In order to facilitate such cooperation, a workshop entitled "Vegetation Classification and Phytogeography of Circumboreal Coniferous Forests" was held in association with the 44th Symposium of the International Association for Vegetation Science in Freising-Weihenstephan, Germany, in 2001. The volume under review took shape at this workshop. It proves that finding a common platform for an understanding of the circumboreal coniferous biome is a realistic goal.

Representation of relevant geographical areas is reasonably balanced: two chapters on European coniferous forests, two on forests in Asia, and two on forests in British Columbia, the American Northwest, and the Rocky Mountains. Toby Spribille and Alina Stachurska-Swakon wrote chapters on classification of North American coniferous forests. As it has already been apparent from his earlier writings (1999, 2000, 2001), Spribille emerges as a leader in American phytosociology. His elaborated descriptions of forest communities (bryophytes and lichens are included) and their classification into floristically defined associations, alliances, and orders match international standards and follow rules of the International Code of Phytosociological Nomenclature (Weber et al. 2000). In the two mentioned chapters, over 700 relevés were used for identification of 35 associations of which 13 were described for the first time. Also, one new alliance and one new order were validly published here. We should appreciate validation of several old names in these chapters. This is a commendable habit that helps to maintain links to earlier studies and prevents accumulation of unnecessary synonyms.

The only critical comment that I can make is probably not completely fair at this stage of development of phytosociology in North America (and, for the same reason in Asia), but it still should be spelled out: more attention should be paid to soil and climate characterization of individual syntaxa. So far, qualitative statements about soil moisture, longitudinal and altitudinal range, slope, and cover in individual strata is usually all what is provided. In Europe, phytosociology has been walking hand in hand with soil science since the very beginning when Josias Braun-Blanquet started working with Hans Jenny in the Alps in the early 1920's.

Currently, an unresolved issue is whether boreal coniferous forests in North American belong to the class (the highest vegetation classification unit) *Vaccinio-Piceetea,* originally described by Braun-Blanquet and his colleagues from the Alps. Many circumboreal elements of these forests (*Galium boreale, Linnaea borealis, Listera cordata, Lycopodium* spp., *Moneses uniflora, Orthilia secunda, Pleurozium schreberi, Rhytidiadelphus loreus, Vaccinium uliginosum,* etc.) provide the justification for one circumboreal class. However, the paucity of traditional *Vaccinio-Piceetea* species in the forests of the alliance *Tsugion mertensianae,* known from subalpine habitats in Oregon, Idaho and British Columbia, makes this question more complicated.

The chapter by Milan Chytrý (Czech Republic) and his colleagues from Austria and Slovakia deals with the Central European *Picea abies* forests. This chapter deserves a special attention. It addresses a nagging question of inconsistent approaches to the designation of diagnostic species. Using 20,164 relevés from the Central European forests, they concluded that lists of diagnostic species published in phytosociological literature are heavily context-dependent. Some of these lists are useful for identification of vegetation units at a local scale, while others for distinguishing units within a narrowly delimited community type over a large area. Therefore, the application of published lists of diagnostic species outside of the context (the underlying data sets and range of comparisons) should be done only with an explicit understanding of this context.

Two recent attempts to classify vegetation in the western United States have been, for many different reasons, unsatisfactory; for critical evaluations see Keil (1997), Rejmánek (1997), Zedler (1997), and Spribille and Češka (2002). As a contrast, North American studies in this volume, as well as studies by Manuel Peinado and his colleagues (1997, 1998), represent a definitive starting points of, and models for, professional vegetation classification in this part of the world. Because now, after a long period of neglect, the need for vegetation classification is clearly recognized in the U.S. (http://

www.esa.org/vegweb/docFiles/NVC_Guidelines_v40.pdf), this volume should be available, at least, in all professional libraries.

—Marcel Rejmánek, Section of Evolution and Ecology, University of California, Davis, CA 95616. mrejmanek@ucdavis.edu.

Literature Cited

Keil, D. J. 1997. A manual of California vegetation [review]. Systematic Botany 22:410–411.

Peinado, M., J. L. Aguirre, and M. de la Cruz. 1998. A phytosociological survey of the boreal forests (*Vaccinio-Piceetea*) in North America. Plant Ecology 137:151–202.

Peinado, M., J. L. Aguirre, and J. Delgadillo. 1997. Phytosociological, bioclimatic and biogeographical classification of woody climax communities of western North America. Journal of Vegetation Science 8: 505–528.

Rejmánek, M. 1997. Vegetation classification: shortcuts lead nowhere. Global Ecology and Biogeography Letters 6:164–165.

Spribille, T. 1999. Forest vegetation in the northern Salish Mountains of northwestern Montana (U.S.A.). Phytoccoenologia 29:503–577.

Spribille, T. 2000. Clarification regarding the paper "Forest vegetation in the northern Salish Mountains of northwestern Montana (U.S.A.)". Phytocoenologia 30:143–144.

Spribille, T. and A. Češka. 2002. North American boreal and western temperate forest vegetation [review]. Journal of Vegetation Science 13:749–750.

Spribille, T., H. G. Stroh, and F. J. Triepke. 2001. Are habitat types compatible with floristically defined associations? Journal of Vegetation Science 12:791–796.

Weber, H. E., J. Moravec, and J.-P. Theurillat. 2000. International code of phytosociological nomenclature, 3rd ed. Journal of Vegetation Science 11:739–768.

Zedler, P. H. 1997. A manual of California vegetation [review]. Madroño 44:214–219.

Plant invasions: ecological threats and management solutions. Edited by L. Child, J. H. Brock, G. Brundu, K. Prach, P. Pyšek, P. M. Wade, and M. Williamson. 2003. Backhuys Publishers, Leiden, the Netherlands. xii + 457 pp., 106 figures, 84 tables. Paperback, Euro 108.00. ISBN 90-5782-135-4.

California is definitely one of the states where interest in invasive plant species has a long tradition (Parish 1920; Robbins 1940; Baker 1962; Frenkel 1970; Randall et al. 1998), and there are many reasons for that (Bossard et al. 2000). Therefore, any interesting publication on plant invasions should be a welcome contribution to our institutional and, as far as we can afford, our private libraries. The book under review is one of them. This volume presents key contributions from the 6th International Conferences on the Ecology and Management of Alien Plant Invasions (EMAPi) held in Loughborough, U.K., in September 2001. In total, 30 chapters were written by 64 authors from 22 countries and 5 continents. The volume is divided into six sections: 1) Mechanism and impact (five chapters), 2) Alien floras (six chapters), 3) Species ecology: congeners (six chapters), 4) Case studies (five chapters), 5) Control (four chapters), and 6) Management (four chapters).

Initially, we may be somewhat disappointed as only one contribution is from the USA (J. H. Brock: *Elaeagnus angustifolia* seed banks from invaded riparian habitats in northeastern Arizona). Nevertheless, as has been already stressed many times, plant invasions are a global problem, and we can learn a lot from what is going on in Argentina, Australia, Europe, or New Zealand. Moreover, several contributions in this volume are of general importance, addressing very basic questions of invasion biology. Just a few examples: (1) Understanding patterns of plant invasions at different spatial scales (10 km^2 to >1,000,000 km^2) (M. Rouget and D. M. Richardson): environmental factors best explained distribution at broad scales; whereas, propagule pressure explained most of the variation at finer (local) scales. (2) The introduction of American plant species into Europe (J. Forman): based on a 6000-species database and the strong relationship between weediness in America and likelihood of being nonbenign in Europe, a warning list was compiled to assist European policy makers in preventing future invasions. Not surprisingly, several American species of *Amaranthus, Bidens, Conyza,* and *Solanum* are on this list; however, *Xanthium strumarium* that is listed here as well, was introduced to Europe not from America but from its native range in East Asia in the Bronze Age. (3) Invasion of the Portuguese dune ecosystems by *Acacia longifolia* (H. Marchante, E. Marchante, and H. Freitas): this Australian species was introduced for dune stabilization; plots invaded by this species have significantly lower species richness than uninvaded patches of native vegetation. As *A. longifolia* is also a difficult invader in coastal areas of South Africa, we should watch this species in California. (4) Alien flora of the Czech Republic (P. Pyšek, J. Sadlo, and B. Mandak): a catalogue of 1378 alien plant taxa (Pyšek et al. 2002), which currently serves as one of the best available models for other countries, is reanalyzed here and compared with relevant information from the British Isles. (5) Japanese knotweed (*Fallopia* spp.) at home and abroad (J. Bailey, C. H. Pashley, and C. Ferris): hybridization and backcrossing is an important phenomenon, offering the possibility of the production of populations better suited for new environments. (6) Invasiveness of 15 *Oenothera* congeners in Europe related to seed characteristics (S. Mihulka, P. Pyšek, and J. Martinkova): germination characteristics appear to be more important than other attributes; taxa that tend to germinate easily in the light are the best invaders. (7) Biological control of invasive weeds in the UK (R. H. Shaw): despite over 1000 releases